RFCA Standard Operating Protocol for Asphalt and Soil Management Site Specific Soil Relocation Plan

August 15, 2002

Project Title: (include applicable Soil Disturbance Permit)

452 D&D (see attached)

Excavation Site Description: Provide the length, width and depth of site from which soil excavation; please attach map if possible:

452 Building Site; within the building footprint and contents of adjacent Soil Containment bunker located immediately to the South (excluding non-soil debris).

Estimated Soil Volume:

8 + cubic yards.

Excavation and Proposed Relocation Site Evaluation: Is the excavation and proposed relocation area within or near an IHSS(s), PAC(s), UBC or other areas of environmental concern. Is the excavation and proposed relocation area within the same OU as defined within the Rocky Flats Cleanup Agreement (RFCA)?

Yes, soils under the B452 slab are near a location impacted by a release of sulfuric acid from the Steam Plant (IHSS 187) in 1970. Also, containerized soils from IHSS 157.2 (across Cottonwood Ave. to the South) have been managed within bunker like boxes also referred to as Hoffa Boxes immediately adjacent to the South wall of B452. Characterization samples have been collected from the soil bunkers and assessed by ER to determine acceptability. The results for organic and inorganic compounds were at or below normal background levels. Radiological Engineering will provide guidance regarding the radiological data assessment.

Site Schedule Status and Schedule: What is the status and schedule of the HRR Site, i.e. proposed NFA, accepted NFA, near-term NFA candidate, scheduled for remediation?

Active for IHSS 157.2. IHSS 187 currently being negotiated for NFA via HRR process.

Soil Compatibility: After thorough review, are contaminant types and concentrations compatible for a relocation (show comparisons)?

Yes, sampling from the Soil Containment bunkers (aka Hoffa Boxes) indicate no contamination issues with organic/inorganic data sets. The data show is within typical background concentrations for organic and inorganic parameters. Radiological Engineering will provide guidance regarding the radiological data assessment. Soils from IHSS 187 where neutralized with 30,000 lbs of Lime and believed remediated.

Air/Surface Water Impacts: Is there a potential to impact air or surface water runoff (discuss mitigation controls)?
No.

Ecology/Erosion: Is there an impact to ecological resources and erosion controls (discuss mitigation controls)?

No.

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Economics: Would relocation be economically justified (provide cost/ benefit assessment)?

Economic justification not necessary for such a small quantity.

APPROVAL:

8-15-02
HRR Coordinator

* 8/21/02
Radiological Engineering

8/23/02
Surface Water Group

8/21/02
RISS Industrial Safety and Hygiene

8/21/02
Project Manager

8-15-02
Environmental Restoration

8/21/2002
Environmental Manager

Blake, Chad

To: Nesta, Stephen
Cc: Demos, Nick; Sollner, Greg; Primrose, Annette
Subject: B452 to B850 Soil Relocation Plan

The following is my input for your decision:

	sample 1	mda	sample 2	mda	bkg	
Am241	0	0.789	0	0.776	0.0227	
Pu239	NA	NA	NA	NA	0.066	
U235	0.4	0.203	0.4	0.271	0.094	
U234/238	4	2.13	3	2.4	2	

The data indicates no detection of Am (and therefore Pu) above the MDA; established background for these isotopes, however, is below the MDA.
U235 and U234/238 was detected above instrument MDA; also, above established background concentrations for these isotopes.

The data also establishes the fact that the soil concentrations are WELL below RFCA Tier II Action Levels.

Therefore, I can establish that these soils do not meet category "A" (unrestricted release) in the attached RSOP table and can categorize these soils as fitting the "B" profile (below RFCA Tier II Action Levels). The disposition column in the table requires "B" soils to be placed in the same OU as long as the area contains a similar isotopic profile. Based on history and process knowledge, it is my opinion that the soils in the 850 area are likely to be at background levels.

*This information is NOT an approval for soil relocation - it is intended to assist Environmental Compliance personnel with their approval decision.

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All asphalt and soil covered by this RSOP will be managed and placed according to the following:

CONTAMINANT CONCENTRATIONS	SOIL	ASPHALT
A. At or below Background or regulatory levels[2].	Soils may be released in an unrestricted manner.	Asphalt may be released in an unrestricted manner.
B. Below RFCA Tier II subsurface soil action levels for radionuclides and non-radionuclide chemicals.	Soils may be placed anywhere within the same Operable Unit (OU)[3] as long as the area contains a similar chemical and/or isotopic profile, and surface water quality and ecological resources are not impacted.	Asphalt may be placed anywhere within the same OU[3] as long as the area contains a similar chemical and/or isotopic profile, and surface water quality and ecological resources are not impacted
C. Between RFCA Tier I and Tier II subsurface soil action levels for radionuclides and non-radionuclide chemicals.	Soil may be placed: (1) within the excavation site from which it was excavated; (2) into the same Individual Hazard Substance Site (IHSS), Potential Area of Concern (PAC), or Under Building Contamination (UBC) from which it was excavated; (3) into a different IHSS, PAC, or UBC within the same OU that contains soil with similar concentrations of the same type of constituents and surface water quality and ecological resources are not impacted, [4] or (4) placed into a container and actively managed in accordance with the Applicable Relevant or Appropriate Requirements (ARARs).	Asphalt may be placed: (1) within the excavation site from which it was excavated; (2) into the same IHSS, PAC, or UBC from which it was excavated; (3) into a different IHSS, PAC, or UBC within the same OU that contains asphalt or soil with similar concentrations of the same type of constituents and surface water quality and ecological resources are not impacted, [4] or (4) placed into a container and actively managed in accordance with the ARARs.
D. Above RFCA Tier I subsurface soil action levels for radionuclides or non-radionuclide chemicals	Soil may be returned to the excavation or disturbance site from which it originated to be evaluated during future ER activities in accordance with the staging pile ARARs or placed into a container and actively managed.	Asphalt will be placed into a container and actively managed in accordance with the ARARs.

FOOTNOTES:

[1] Asphalt may only be used as fill material and may not be placed at the surface.

[2] As identified in the Background Geochemical Characterization Report (Tables D-16 and D-17), EG&G, 1993, 6 CCR 1007-3, 261 and Toxic Substance Control Act (TSCA) 40 CFR 761. (Background is the mean plus 2 standard deviations for the upper flow system)

[3] An OU is defined in RFCA as a grouping of Individual Hazardous Substance Sites (IHSSs) into a single management unit.

[4] Asphalt or soil will not be moved to a different IHSS, PAC, or UBC that has been proposed for No Further Action (NFA). If asphalt or soil are placed into a different IHSS, PAC, or UBC within the same OU that contains asphalt or soil with similar concentrations of the same type of constituents, the IHSS, PAC, or UBC will be evaluated during future ER activities to determine what action is needed, if any.

Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-008C

Client Sample ID: 850 PILE
Bottle Number: 02E0174-008.003
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
METALS BY X-RAY FLUORESCENCE						Analyst: **LSB**
Analytical Run: XRF_020731A						**SW6200**
Antimony	7.5	35.0	J	mg/Kg-dry	1	7/31/2002
Arsenic	18	25.0	J	mg/Kg-dry	1	7/31/2002
Barium	646	150		mg/Kg-dry	1	7/31/2002
Cadmium	ND	85.0		mg/Kg-dry	1	7/31/2002
Calcium	26800	3000		mg/Kg-dry	1	7/31/2002
Chromium	47	90.0	J	mg/Kg-dry	1	7/31/2002
Cobalt	ND	90.0		mg/Kg-dry	1	7/31/2002
Copper	83	300	J	mg/Kg-dry	1	7/31/2002
Iron	45800	2500		mg/Kg-dry	1	7/31/2002
Lead	20.8	20.0		mg/Kg-dry	1	7/31/2002
Manganese	689	200		mg/Kg-dry	1	7/31/2002
Molybdenum	ND	50.0		mg/Kg-dry	1	7/31/2002
Nickel	53	60.0	J	mg/Kg-dry	1	7/31/2002
Potassium	24900	5000		mg/Kg-dry	1	7/31/2002
Selenium	ND	20.0		mg/Kg-dry	1	7/31/2002
Silver	2.0	55.0	J	mg/Kg-dry	1	7/31/2002
Strontium	230	250	J	mg/Kg-dry	1	7/31/2002
Tin	4.2	45.0	J	mg/Kg-dry	1	7/31/2002
Vanadium	148	100		mg/Kg-dry	1	7/31/2002
Zinc	140	300	J	mg/Kg-dry	1	7/31/2002

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
*- Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
DF-Dilution Factor

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Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-008B

Client Sample ID: 850 PILE
Bottle Number: 02E0174-008.002
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS IN SOILS						Analyst: MH
Analytical Run: MS3 VOA_020731A						SW8260B
1,1,1,2-Tetrachloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1,1-Trichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1,2,2-Tetrachloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1,2-Trichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1-Dichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1-Dichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,1-Dichloropropene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2,3-Trichlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2,3-Trichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2,4-Trichlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2,4-Trimethylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2-Dibromo-3-chloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2-Dibromoethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2-Dichlorobenzene	ND	750		µg/Kg-dry	1	7/31/2002 18:27:00
1,2-Dichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,2-Dichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,3,5-Trimethylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,3-Dichlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,3-Dichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
1,4-Dichlorobenzene	ND	750		µg/Kg-dry	1	7/31/2002 18:27:00
2,2-Dichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
2-Butanone	ND	110		µg/Kg-dry	1	7/31/2002 18:27:00
2-Chlorotoluene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
2-Hexanone	ND	56		µg/Kg-dry	1	7/31/2002 18:27:00
4-Chlorotoluene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
4-Isopropyltoluene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
4-Methyl-2-pentanone	ND	56		µg/Kg-dry	1	7/31/2002 18:27:00
Acetone	ND	110		µg/Kg-dry	1	7/31/2002 18:27:00
Benzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Bromobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Bromochloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Bromodichloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Bromoform	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Bromomethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Carbon disulfide	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Carbon tetrachloride	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Chlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Chloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00

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DF-Dilution Factor

Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-008B

Client Sample ID: 850 PILE
Bottle Number: 02E0174-008.002
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS IN SOILS						Analyst: **MH**
Analytical Run: MS3 VOA_020731A						**SW8260B**
Chloroform	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Chloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
cis-1,2-Dichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
cis-1,3-Dichloropropene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Dibromochloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Dibromomethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Dichlorodifluoromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Ethylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Hexachlorobutadiene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Isopropylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Methylene chloride	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
n-Butylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
n-Propylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Naphthalene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
sec-Butylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Styrene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
tert-Butylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Tetrachloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Toluene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
trans-1,2-Dichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
trans-1,3-Dichloropropene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Trichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Trichlorofluoromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Vinyl chloride	ND	5.6		µg/Kg-dry	1	7/31/2002 18:27:00
Xylenes, Total	ND	0		µg/Kg-dry	1	7/31/2002 18:27:00
Surr: 1,2-Dichloroethane-d4	111	70-130		%REC	1	7/31/2002 18:27:00
Surr: 4-Bromofluorobenzene	81.1	70-130		%REC	1	7/31/2002 18:27:00
Surr: Toluene-d8	97.1	70-130		%REC	1	7/31/2002 18:27:00

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Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-008A

Client Sample ID: 850 PILE
Bottle Number: 02E0174-008.001
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result			Limit	Qual	Units	DF	Date Analyzed
GAMMA SPECTROSCOPY ON SOLIDS								Analyst: **DS**
Analytical Run: LI7482_020731B	± uncertainty and MDA for gamma							**URSRAD**
Actinium-228	2.10E+00	± 6.18E-01	3.57E-01			pCi/g-dry	1	7/31/2002 10:16:54
Americium-241	0.00E+00	± 0.00E+00	7.89E-01	4		pCi/g-dry	1	7/31/2002 10:16:54
Bismuth-212	2.60E+00	± 1.20E+00	1.75E+00			pCi/g-dry	1	7/31/2002 10:16:54
Bismuth-214	8.70E-01	± 1.77E-01	2.88E-01			pCi/g-dry	1	7/31/2002 10:16:54
Cesium-137	0.00E+00	± 0.00E+00	1.90E-01			pCi/g-dry	1	7/31/2002 10:16:54
Lead-212	1.80E+00	± 3.84E-01	1.95E-01			pCi/g-dry	1	7/31/2002 10:16:54
Lead-214	7.80E-01	± 2.07E-01	3.84E-01			pCi/g-dry	1	7/31/2002 10:16:54
Polonium-210	0.00E+00	± 0.00E+00	1.50E+04			pCi/g-dry	1	7/31/2002 10:16:54
Potassium-40	1.80E+01	± 1.94E+00	1.77E+00			pCi/g-dry	1	7/31/2002 10:16:54
Protactinium-234	0.00E+00	± 0.00E+00	5.63E-01			pCi/g-dry	1	7/31/2002 10:16:54
Protactinium-234m	0.00E+00	± 0.00E+00	1.91E+01			pCi/g-dry	1	7/31/2002 10:16:54
Radium-226	0.00E+00	± 0.00E+00	3.27E+00			pCi/g-dry	1	7/31/2002 10:16:54
Thallium-208	5.80E-01	± 1.07E-01	1.36E-01			pCi/g-dry	1	7/31/2002 10:16:54
Thorium-230	0.00E+00	± 0.00E+00	5.54E+01			pCi/g-dry	1	7/31/2002 10:16:54
Thorium-231	0.00E+00	± 0.00E+00	2.64E+00			pCi/g-dry	1	7/31/2002 10:16:54
Uranium-235	4.00E-01	± 1.30E-01	2.03E-01	1		pCi/g-dry	1	7/31/2002 10:16:54
Uranium-238/-234	4.00E+00	± 3.78E+00	2.13E+00	8		pCi/g-dry	1	7/31/2002 10:16:54
PERCENT MOISTURE								Analyst: **LSB**
Analytical Run: IR-200_020731A								**D2216**
Percent Moisture	11.44					wt%	1	7/31/2002

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Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-007C

Client Sample ID: 850 PILE
Bottle Number: 02E0174-007.003
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
METALS BY X-RAY FLUORESCENCE						Analyst: **LSB**
Analytical Run: XRF_020731A						**SW6200**
Antimony	ND	35.0		mg/Kg-dry	1	7/31/2002
Arsenic	11	25.0	J	mg/Kg-dry	1	7/31/2002
Barium	637	150		mg/Kg-dry	1	7/31/2002
Cadmium	1.3	85.0	J	mg/Kg-dry	1	7/31/2002
Calcium	21400	3000		mg/Kg-dry	1	7/31/2002
Chromium	23	90.0	J	mg/Kg-dry	1	7/31/2002
Cobalt	ND	90.0		mg/Kg-dry	1	7/31/2002
Copper	61	300	J	mg/Kg-dry	1	7/31/2002
Iron	35400	2500		mg/Kg-dry	1	7/31/2002
Lead	20	20.0	J	mg/Kg-dry	1	7/31/2002
Manganese	515	200		mg/Kg-dry	1	7/31/2002
Molybdenum	ND	50.0		mg/Kg-dry	1	7/31/2002
Nickel	35	60.0	J	mg/Kg-dry	1	7/31/2002
Potassium	19300	5000		mg/Kg-dry	1	7/31/2002
Selenium	ND	20.0		mg/Kg-dry	1	7/31/2002
Silver	ND	55.0		mg/Kg-dry	1	7/31/2002
Strontium	210	250	J	mg/Kg-dry	1	7/31/2002
Tin	1.9	45.0	J	mg/Kg-dry	1	7/31/2002
Vanadium	91	100	J	mg/Kg-dry	1	7/31/2002
Zinc	120	300	J	mg/Kg-dry	1	7/31/2002

Qualifiers:

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Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-007B

Client Sample ID: 850 PILE
Bottle Number: 02E0174-007.002
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS IN SOILS						Analyst: MH
Analytical Run: MS3 VOA_020731A						SW8260B
1,1,1,2-Tetrachloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1,1-Trichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1,2,2-Tetrachloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1,2-Trichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1-Dichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1-Dichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,1-Dichloropropene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2,3-Trichlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2,3-Trichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2,4-Trichlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2,4-Trimethylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2-Dibromo-3-chloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2-Dibromoethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2-Dichlorobenzene	ND	730		µg/Kg-dry	1	7/31/2002 17:51:00
1,2-Dichloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,2-Dichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,3,5-Trimethylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,3-Dichlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,3-Dichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
1,4-Dichlorobenzene	ND	730		µg/Kg-dry	1	7/31/2002 17:51:00
2,2-Dichloropropane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
2-Butanone	ND	110		µg/Kg-dry	1	7/31/2002 17:51:00
2-Chlorotoluene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
2-Hexanone	ND	56		µg/Kg-dry	1	7/31/2002 17:51:00
4-Chlorotoluene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
4-Isopropyltoluene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
4-Methyl-2-pentanone	ND	56		µg/Kg-dry	1	7/31/2002 17:51:00
Acetone	ND	110		µg/Kg-dry	1	7/31/2002 17:51:00
Benzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Bromobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Bromochloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Bromodichloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Bromoform	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Bromomethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Carbon disulfide	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Carbon tetrachloride	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Chlorobenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Chloroethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
DF-Dilution Factor

10

Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-007B

Client Sample ID: 850 PILE
Bottle Number: 02E0174-007.002
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
VOLATILE ORGANICS IN SOILS						Analyst: **MH**
Analytical Run: MS3 VOA_020731A						**SW8260B**
Chloroform	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Chloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
cis-1,2-Dichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
cis-1,3-Dichloropropene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Dibromochloromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Dibromomethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Dichlorodifluoromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Ethylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Hexachlorobutadiene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Isopropylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Methylene chloride	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
n-Butylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
n-Propylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Naphthalene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
sec-Butylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Styrene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
tert-Butylbenzene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Tetrachloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Toluene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
trans-1,2-Dichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
trans-1,3-Dichloropropene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Trichloroethene	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Trichlorofluoromethane	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Vinyl chloride	ND	5.6		µg/Kg-dry	1	7/31/2002 17:51:00
Xylenes, Total	ND	0		µg/Kg-dry	1	7/31/2002 17:51:00
Surr: 1,2-Dichloroethane-d4	110	70-130		%REC	1	7/31/2002 17:51:00
Surr: 4-Bromofluorobenzene	82.9	70-130		%REC	1	7/31/2002 17:51:00
Surr: Toluene-d8	101	70-130		%REC	1	7/31/2002 17:51:00

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
DF-Dilution Factor

Date: 20-Aug-02

CLIENT: Rocky Flats Environmental Restoration Group
Lab Order: 0207088
Project: 400-07 Building 442
Lab ID: 0207088-007A

Client Sample ID: 850 PILE
Bottle Number: 02E0174-007.001
Collection Date: 7/30/2002 15:30:00
Matrix: SOIL

Analyses	Result		Limit	Qual	Units	DF	Date Analyzed
GAMMA SPECTROSCOPY ON SOLIDS							Analyst: **DS**
Analytical Run: LI7482_020731B	± uncertainty and MDA for gamma						**URSRAD**
Actinium-228	1.70E+00	± 5.42E-01	3.54E-01		pCi/g-dry	1	7/31/2002 09:15:48
Americium-241	0.00E+00	± 0.00E+00	7.76E-01	4	pCi/g-dry	1	7/31/2002 09:15:48
Bismuth-212	1.60E+00	± 9.08E-01	1.37E+00		pCi/g-dry	1	7/31/2002 09:15:48
Bismuth-214	9.10E-01	± 1.92E-01	3.38E-01		pCi/g-dry	1	7/31/2002 09:15:48
Cesium-137	9.90E-02	± 1.73E-01	7.36E-02		pCi/g-dry	1	7/31/2002 09:15:48
Lead-212	1.80E+00	± 1.49E-01	1.98E-01		pCi/g-dry	1	7/31/2002 09:15:48
Lead-214	9.90E-01	± 1.91E-01	3.48E-01		pCi/g-dry	1	7/31/2002 09:15:48
Polonium-210	2.10E+03	± 2.19E+03	6.64E+03		pCi/g-dry	1	7/31/2002 09:15:48
Potassium-40	2.10E+01	± 1.83E+00	1.37E+00		pCi/g-dry	1	7/31/2002 09:15:48
Protactinium-234	0.00E+00	± 0.00E+00	5.57E-01		pCi/g-dry	1	7/31/2002 09:15:48
Protactinium-234m	0.00E+00	± 0.00E+00	1.50E+01		pCi/g-dry	1	7/31/2002 09:15:48
Radium-226	0.00E+00	± 0.00E+00	4.37E+00		pCi/g-dry	1	7/31/2002 09:15:48
Thallium-208	5.30E-01	± 1.14E-01	1.55E-01		pCi/g-dry	1	7/31/2002 09:15:48
Thorium-230	0.00E+00	± 0.00E+00	5.50E+01		pCi/g-dry	1	7/31/2002 09:15:48
Thorium-231	1.10E+00	± 4.69E-01	1.65E+00		pCi/g-dry	1	7/31/2002 09:15:48
Uranium-235	4.00E-01	± 1.65E-01	2.71E-01	1	pCi/g-dry	1	7/31/2002 09:15:48
Uranium-238/-234	3.00E+00	± 3.34E+00	2.40E+00	8	pCi/g-dry	1	7/31/2002 09:15:48
PERCENT MOISTURE							Analyst: **LSB**
Analytical Run: IR-200_020731A							**D2216**
Percent Moisture	9.940				wt%	1	7/31/2002

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
DF-Dilution Factor

12

Lab Name:Severn Trent Laboratories, Inc. SDG Number:02E0174

Matrix: (soil/water) SO Lab Sample ID:D2H010285 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX01AA Date Extracted:08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %:12

QC Batch: 2213400

Client Sample Id: 02E0174-007.004

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	370	U
208-96-8	Acenaphthylene	370	U
120-12-7	Anthracene	370	U
56-55-3	Benzo(a)anthracene	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
65-85-0	Benzoic acid	1800	U
191-24-2	Benzo(ghi)perylene	370	U
50-32-8	Benzo(a)pyrene	370	U
100-51-6	Benzyl alcohol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
111-44-4	bis(2-Chloroethyl) ether	370	U
108-60-1	bis(2-Chloroisopropyl) ether	370	U
117-81-7	**bis(2-Ethylhexyl) phthalate**	120	J
101-55-3	4-Bromophenyl phenyl ether	370	U
85-68-7	**Butyl benzyl phthalate**	63	J
106-47-8	4-Chloroaniline	370	U
59-50-7	4-Chloro-3-methylphenol	370	U
91-58-7	2-Chloronaphthalene	370	U
95-57-8	2-Chlorophenol	370	U
7005-72-3	4-Chlorophenyl phenyl ether	370	U
218-01-9	Chrysene	370	U
53-70-3	Dibenz(a,h)anthracene	370	U
132-64-9	Dibenzofuran	370	U
84-74-2	Di-n-butyl phthalate	370	U
95-50-1	1,2-Dichlorobenzene	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U

KAISER-HILL LLC

Lab Name:Severn Trent Laboratories, Inc. SDG Number:02E0174

Matrix: (soil/water) SO Lab Sample ID:D2H010285 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX01AA Date Extracted:08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %:12

QC Batch: 2213400

Client Sample Id: 02E0174-007.004

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
91-94-1	3,3'-Dichlorobenzidine	1500	U
120-83-2	2,4-Dichlorophenol	370	U
84-66-2	Diethyl phthalate	750	U
105-67-9	2,4-Dimethylphenol	370	U
131-11-3	Dimethyl phthalate	370	U
117-84-0	Di-n-octyl phthalate	370	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
51-28-5	2,4-Dinitrophenol	1800	U
121-14-2	2,4-Dinitrotoluene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
206-44-0	Fluoranthene	370	U
86-73-7	Fluorene	370	U
118-74-1	Hexachlorobenzene	370	U
87-68-3	Hexachlorobutadiene	370	U
77-47-4	Hexachlorocyclopentadiene	750	U
67-72-1	Hexachloroethane	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
78-59-1	Isophorone	370	U
91-57-6	2-Methylnaphthalene	370	U
95-48-7	2-Methylphenol	370	U
106-44-5	4-Methylphenol	370	U
91-20-3	Naphthalene	370	U
88-74-4	2-Nitroaniline	1800	U
99-09-2	3-Nitroaniline	1800	U
100-01-6	4-Nitroaniline	1800	U
98-95-3	Nitrobenzene	370	U
88-75-5	2-Nitrophenol	370	U
100-02-7	4-Nitrophenol	1800	U

Lab Name: Severn Trent Laboratories, Inc. SDG Number: 02E0174

Matrix: (soil/water) SO Lab Sample ID: D2H010285 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX01AA Date Extracted: 08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %: 12

QC Batch: 2213400

Client Sample Id: 02E0174-007.004

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
621-64-7	N-Nitrosodi-n-propylamine	370	U
86-30-6	N-Nitrosodiphenylamine	370	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	**Phenanthrene**	**44**	**J**
108-95-2	Phenol	370	U
129-00-0	**Pyrene**	**51**	**J**
120-82-1	1,2,4-Trichlorobenzene	370	U
95-95-4	2,4,5-Trichlorophenol	370	U
88-06-2	2,4,6-Trichlorophenol	370	U

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
2-Fluorophenol	67	(39 - 92)
Phenol-d5	69	(34 - 95)
Nitrobenzene-d5	70	(40 - 94)
2-Fluorobiphenyl	67	(40 - 91)
2,4,6-Tribromophenol	48	(34 - 97)
Terphenyl-d14	58	(37 - 99)

FORM I

KAISER-HILL LLC
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:02E0174

Matrix: (soil/water) SO Lab Sample ID:D2H010285 007
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX01AA Date Extracted:08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %:12

QC Batch: 2213400

Client Sample Id: 02E0174-007.004

CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (ug/L or ug/kg) ug/kg	Q
	Unknown	3.6335	2800	J
	Unknown	3.827	93000	J
	Unknown	4.0743	280	J
	Unknown	4.3324	2600	J
	Unknown	4.784	180	J
	Unknown	4.8324	380	J
112-95-8	Eicosane	11.719	220	J

FORM I - TIC

Lab Name:Severn Trent Laboratories, Inc. SDG Number:02E0174

Matrix: (soil/water) SO Lab Sample ID:D2H010285 008
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX11AA Date Extracted:08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %:8.1

QC Batch: 2213400

Client Sample Id: 02E0174-008.004

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
83-32-9	Acenaphthene	360	U
208-96-8	Acenaphthylene	360	U
120-12-7	Anthracene	360	U
56-55-3	Benzo(a)anthracene	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
65-85-0	Benzoic acid	1700	U
191-24-2	Benzo(ghi)perylene	360	U
50-32-8	Benzo(a)pyrene	360	U
100-51-6	Benzyl alcohol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
111-44-4	bis(2-Chloroethyl) ether	360	U
108-60-1	bis(2-Chloroisopropyl) ether	360	U
117-81-7	bis(2-Ethylhexyl) phthalate	360	U
101-55-3	4-Bromophenyl phenyl ether	360	U
85-68-7	Butyl benzyl phthalate	360	U
106-47-8	4-Chloroaniline	360	U
59-50-7	4-Chloro-3-methylphenol	360	U
91-58-7	2-Chloronaphthalene	360	U
95-57-8	2-Chlorophenol	360	U
7005-72-3	4-Chlorophenyl phenyl ether	360	U
218-01-9	Chrysene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
132-64-9	Dibenzofuran	360	U
84-74-2	Di-n-butyl phthalate	360	U
95-50-1	1,2-Dichlorobenzene	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U

KAISER-HILL LLC

Lab Name: Severn Trent Laboratories, Inc. SDG Number: 02E0174

Matrix: (soil/water) SO Lab Sample ID: D2H010285 008
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX11AA Date Extracted: 08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %: 8.1

QC Batch: 2213400

Client Sample Id: 02E0174-008.004

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
91-94-1	3,3'-Dichlorobenzidine	1400	U
120-83-2	2,4-Dichlorophenol	360	U
84-66-2	Diethyl phthalate	720	U
105-67-9	2,4-Dimethylphenol	360	U
131-11-3	Dimethyl phthalate	360	U
117-84-0	Di-n-octyl phthalate	360	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	U
51-28-5	2,4-Dinitrophenol	1700	U
121-14-2	2,4-Dinitrotoluene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
206-44-0	Fluoranthene	360	U
86-73-7	Fluorene	360	U
118-74-1	Hexachlorobenzene	360	U
87-68-3	Hexachlorobutadiene	360	U
77-47-4	Hexachlorocyclopentadiene	720	U
67-72-1	Hexachloroethane	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
78-59-1	Isophorone	360	U
91-57-6	2-Methylnaphthalene	360	U
95-48-7	2-Methylphenol	360	U
106-44-5	4-Methylphenol	360	U
91-20-3	Naphthalene	360	U
88-74-4	2-Nitroaniline	1700	U
99-09-2	3-Nitroaniline	1700	U
100-01-6	4-Nitroaniline	1700	U
98-95-3	Nitrobenzene	360	U
88-75-5	2-Nitrophenol	360	U
100-02-7	4-Nitrophenol	1700	U

KAISER-HILL LLC

Lab Name: Severn Trent Laboratories, Inc. SDG Number: 02E0174

Matrix: (soil/water) SO Lab Sample ID: D2H010285 008
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX11AA Date Extracted: 08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %: 8.1

QC Batch: 2213400

Client Sample Id: 02E0174-008.004

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
621-64-7	N-Nitrosodi-n-propylamine	360	U
86-30-6	N-Nitrosodiphenylamine	360	U
87-86-5	Pentachlorophenol	1700	U
85-01-8	**Phenanthrene**	**58**	**J**
108-95-2	Phenol	360	U
129-00-0	**Pyrene**	**53**	**J**
120-82-1	1,2,4-Trichlorobenzene	360	U
95-95-4	2,4,5-Trichlorophenol	360	U
88-06-2	2,4,6-Trichlorophenol	360	U

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
2-Fluorophenol	68	(39 - 92)
Phenol-d5	68	(34 - 95)
Nitrobenzene-d5	69	(40 - 94)
2-Fluorobiphenyl	62	(40 - 91)
2,4,6-Tribromophenol	40	(34 - 97)
Terphenyl-d14	52	(37 - 99)

FORM I

KAISER-HILL LLC
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name:Severn Trent Laboratories, Inc. SDG Number:02E0174

Matrix: (soil/water) SO Lab Sample ID:D2H010285 008
Method: SW846 8270C
Base/Neutrals and Acids (8270C)

Sample WT/Vol: 30 / g Date Received: 08/01/02
Work Order: E5QX11AA Date Extracted:08/01/02
Dilution factor: 1 Date Analyzed: 08/02/02
Moisture %:8.1

QC Batch: 2213400

Client Sample Id: 02E0174-008.004

(ug/L or ug/kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	Unknown	3.6391	2700	J
	Unknown	3.8326	93000	J
	Unknown	4.08	300	J
	Unknown	4.3326	2600	J
	Unknown	4.838	360	J
	Unknown	10.38	620	J

FORM I - TIC

SOIL DISTRUBANCE APPROVAL FORM

GENERAL INFORMATION

Location: 452 Project Title: 452 D&D

Description of work to be performed: Remove Slab and Foundations

Contractor: KH Construction Charge No.: EDD30260 Log No.: 270

Special Instructions/Remarks:

Disturbance Limits (Duration/Boundary):

Responsible Job Supervisor:

Operators/Workers:

NOTE:

Call extension 4197 or 2538 before starting work. Soil disturbance activities may commence only after utility locates and a pre-evolution /task briefing is conducted. Unless otherwise specified by the Excavation Specialist, no entry SHALL be made unless approved by the Excavation Specialist.

Refer to the attached "Excavation Specialist's Inspection Log" for approval, special requirements and remarks.

APPROVAL

Excavation Specialist (Print and Sign): Date:

Revision Date: 11/00

APPENDIX 5

SOIL DISTRUBANCE APPROVAL FORM

EXCAVATION SPECIALIST'S INSPECTION AND ENTRY APPROVAL LOG (Use additional sheets as necessary)		
Date	Initials	Special Requirements and Remarks

ROSH

APPENDIX 3

SOIL DISTRUBANCE REQUEST FORM

(Page 1 of 1)

The purpose of this information is to assist the Requester in the identification of potential hazards associated with this soil disturbance. Submit the completed form to the Excavation Specialist.

GENERAL INFORMATION (To be completed by Requester)

Date: 6/26/02 Requestor: MOFLANAGEY Qualified Waste Generator: PAUL VALENZUELA

Department: KH CONSTRUCTION Ext./Page: 8329 2125407 Authorized Charge No.: EDD30260

Project Title: B452 DEMOLITION Location: B452

Date Needed: 7-8-02 *Note: If needed in less than 2 weeks, please provide justification below:*

Justification:

What is the excavation for:

☒ Construction ☐ Trenching ☐ Sampling ☐ Driven Rods/Posts ☐ Grounding ☐ Post Holes

☐ Other (Explain): DEMOLITION

EXCAVATION DETAILS (To be completed by Requester)

Will soil removal be by hand only? NO	☐Yes ☒No ☐N/A
Will drilling be performed? If yes, state: Drill Depth: Diameter: Explain: NO	☐Yes ☒No ☐N/A
Will mechanical equipment be required? If yes, state: Type of Equipment: EXCAVATORS AND LOADERS Estimated Excavation Depth: 3' Length: Width:	☒Yes ☐No ☐N/A
Will shoring be required? NO	☐Yes ☒No ☐N/A

REMARKS (To be completed by Requester)

REMOVING SLAB AND FOUNDATION TO 3' BELOW GRADE

REVIEW AND APPROVAL (Requester – DO NOT complete this section)

ENVIRONMENTAL REMEDIATION PROJECTS/OPERATIONS Are there any special environmental remediation precautions or management actions (i.e. sampling plans, etc.) required for this activity? If yes, attach a summary of requirements. Name (Print/Sign): N.S. Dennis Date: 6-27-02	☐Yes ☑No
RISS ENVIRONMENTAL Are there any special environmental compliance precautions or management actions (i.e. sampling plans, etc.) required for this activity? If yes, attach a summary of requirements. Name (Print/Sign): Greg Sollmer Date: 6/27/02	☐Yes ☐No
RADIOLOGICAL ENGINEERING Are there any special radiological precautions or management actions (i.e. sampling plans, etc.) required for this activity? If yes, attach a summary of requirements. Name (Print/Sign): C Blake / CBlake Date: 6/27/02	☐Yes ☐No
SAFETY AND HEALTH Are there any special safety and health precautions or management actions (i.e. sampling plans, etc.) required for this activity? If yes, attach a summary of requirements. Name (Print/Sign): DT Lasco Date: 6/27/02	☐Yes ☐No

Revision Date: 11/00

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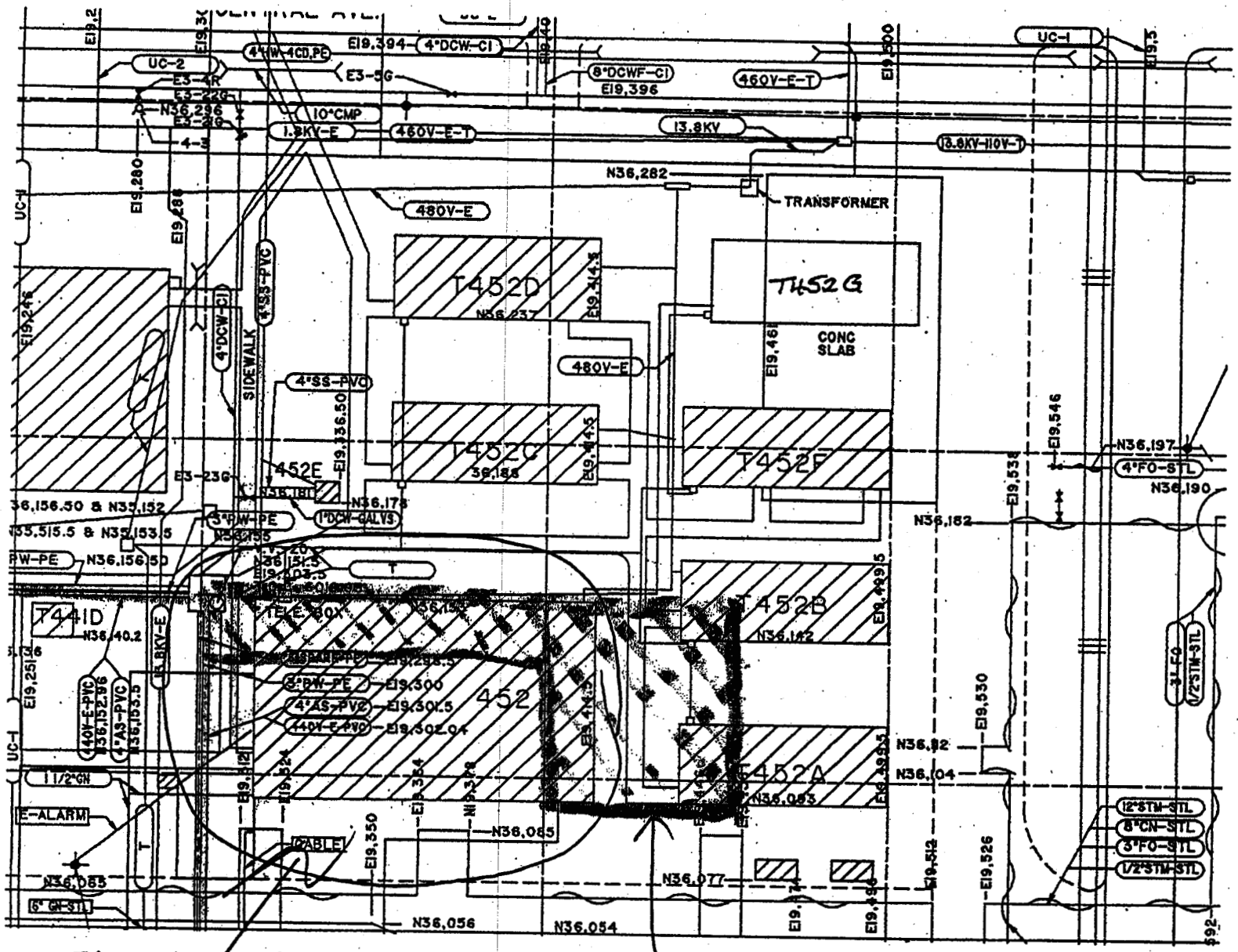
CHRG.# EDD30200

TITLE – DISCONNECT ALL UTILITIES FROM 452, T452A,B,C,D,G,&F



Remediation, Industrial D&D, & Site Services

Soil Disturbance Site Survey Assessment Report

Authorization Number:	EDD30200
Project Title:	B452 Slab Removal
Prepared By:	Chad Blake, Radiological Engineer, RISS, X5909
Number:	043-02
Date:	June 27, 2002

This soil disturbance package addresses excavation to remove the B452 slab and associated concrete.

The planned excavation location is within or near Individual Hazardous Substance Sites (IHSS), Potential Areas of Concern (PAC), and Under Building Contamination Areas (UBC); please see Environmental Assessment for further information. Extensive historical data and process knowledge shows that radiological soil concentration levels in this area are well below RFCA Tier II Action Levels, at or near background levels. Therefore, a Radiological Work Permit **will not be required** to perform this work.

Soil sampling will not be required for soils generated or managed due to excavation; including soils that are excavated with the intention of obtaining "put back" approval.

There are additional Radiological Protection requirements for the unrestricted release of materials from RFETS. The requirements are as follows:

- **All wastes** generated and **property/equipment/samples** associated with this project (including equipment, debris/waste, etc.) must be evaluated in accordance with *PRO-141-RSP-09.01,* Unrestricted Release of Property, Material, Equipment and Waste, and *PRO-1004-RSP-09.08,* Radioactive Material Transfer and Unrestricted Release of Property, Waste and Samples.

- This permit applies **exclusively to soil excavation processes** associated with B452. Debris and waste associated with the actual facility structure are characterized through appropriate methods associated with the D&D process. Please contact Roger Worrick, RISS Radiological Characterization Engineer for further information.

Additional requirements for the disposition of materials on the RFETS site are as follows:

- Concrete/debris to be dispositioned on site (i.e. as backfill under the concrete recycling RSOP) shall be managed in accordance with the approved Concrete RSOP (RFCA Standard Operating Protocol for Recycling Concrete). Concrete/debris that has not been included in a facility characterization (i.e., adjacent sidewalks, under-slab, etc.) may not be adequately characterized per the RSOP and may require further characterization/approval for on-site disposition. Contact Dyan Foss at X7577 for approval, and with any questions or concerns. Concrete/debris being considered for off-site disposal is subject the release requirements as stated above.

Note: According to the project waste generator, the concrete slab is planned to be dispositioned on-site as recycled concrete. The materials have not been adequately characterized per the concrete RSOP. Radiological surveys on 15% of the under-side of the materials are required prior to disposition to the rubble pile. All soils shall be removed to the maximum practical extent prior to transfer.

- Soils and asphalt to be dispositioned on site (i.e. put-back, relocation) shall be managed in accordance with the approved Soil and Asphalt Management RSOP. Written direction from K-H Environmental Compliance (Greg Sollner, x3541) is required to disposition soils on site.

The area in which work will be conducted is controlled by RISS. A copy of this correspondence has been sent to Curtis Bean, RISS Radiological Safety Manager. Please contact Curtis at X2069 for further radiological support. Radiological Engineering support will also be available to perform the required release evaluations listed above, as well as to answer any questions the project may have; you may contact me at X5909. Radiological Operations support (RCT, surveys, etc.) may be arranged through Steve Gernatt, Radiological Operations Foreman, X5672.

Deviations from the currently defined scope of work will require further evaluation by Radiological Engineering.

If any unusual material/debris is encountered during this excavation, work must be stopped and RISS Radiological Engineering and Operations notified for evaluation prior to continuing.

Environmental Assessment for Construction Activities

Authorization No.: EDD30200

Reviewer: RMRS, Environmental Characterization Group, T124A, X3656

Date: June 25, 2002

OBJECTIVE:
Demolition of Building 452.

ENVIRONMENTAL ASSESSMENT:
The project plans specify the Demolition of Building 452. The depth of the excation provided in the soil disturbance request form is 3 feet. It is assumed that the excavation will be limited to within three feet of the former building's perimeter.

IHSS 187
The excavation area is within a portion of IHSS 187. IHSS 187 is an area impacted from a sulfuric acid spill in 1970. It was proposed that the location of IHSS 187 be defined as east of Building 443, extending into an area now occupied by Building 452.

Approximately 1,500 gallons are reported to have been released at the tank's leaking flange directly to the ground. An additional 1,300 gallons were recovered from the neutralization tank. It is expected that the remaining 200 gallons leaked from the neutralization tank into the sanitary sewer system and caused the low pH discharge from the sanitary wastewater treatment plant (Building 995). Assuming that the acid tank was filled to capacity (3,000 gallons), approximately 200 gallons of acid are unaccounted for in the description of the incident. Approximately 32,000 pounds of lime was added to neutralize the acid.

PAC 400-802
The excavation area is also located near PAC 400-802, specifically T452B, T452F, and T452G. This PAC comprises areas suspected to be impacted from the Building 334 storage area. The storage area south of Building 334 was originally a metal or wooden structure built on a concrete slab. A July 1955 aerial photograph indicates that the building had been removed but the remaining slab was not being used for storage. The first documented usage of the storage area was reported on October 24, 1955 when 125 barrels of depleted uranium chips immersed in oil were stored there. The drums developed leaks that contaminated the slab. In October 1956, one or two leaking drums contaminated the slab to 537 dpm. As of November 1956, ten to twenty drums were leaking. On November 12, 1956, a 30-gallon overturned drum spilled contaminated oil onto the slab.

The drums were completely removed and the slab cleaned as of November 28, 1956. However, it was discovered that contamination had spread to equipment that was also stored there. The equipment was moved but the slab still had smears of up to 10,000 dpm. Additional monitoring conducted in December 1956 revealed that the contamination was spreading due to weather

conditions. By January 1957, low-level radioactivity had extended to the fuel storage tank located south of Building 551 (PAC 600-152).

The first drums stored on the slab contained depleted uranium chips immersed in oil. There were 125 30-gallon drums stored at the site until November 28, 1956. Perchloroethylene was used on the slab for decontamination.

Cleanup was attempted in October 1956, when the drums were first found to be leaking. The "leakers" were placed in larger drums and contamination on the concrete slab was reduced from 537 dpm to 108 dpm using perchloroethylene. The activity from the overturned drum was cleaned up and decontaminated to a "low level". The drums were moved to the "bull pen," located in part of the area covered by the 903 Pad (PAC 900-112), on the 15th and 16th of November 1956. The slab where the drums were stored was cleaned on November 28, 1956.8

Although the slab was cleaned where the drums were stored, the area around the contaminated equipment had not been cleaned as of the end of December 1956. The equipment was moved to a production area on plant site. The loose oxide was removed and the area covered with plastic to prevent spreading of activity. Smears up to 9,936 dpm were collected prior to vacuuming. Monitoring conducted on December 20, 1956 showed a maximum of 7,245 dpm on the slab.

New Process Waste Lines

New process waste lines are present along the west side of Building 452 as well as Valve Vault 20 at the northwest corner of Building 452. Further process knowledge exists that there have been no new (post 1980) spills of hazardous materials from the new process waste lines in the prescribed work areas.

Sampling:

RCRA constituents are not of concern, and sampling of excavated materials is not required. Impacted soils appear to have been addressed by the application of approximately 32,000 pounds of lime. No additional sampling is required. Radiological Engineering will provide recommendations on sampling requirements for radionuclides.

In the event that an unknown or unforeseen condition arises in the area(s) specified within this permit, work will stop immediately and sampling may be required to characterize the nature and extent of the incident or discovery.

The waste generator and project manager will coordinate with the Environmental Characterization and Radiological Engineering Departments prior to initiating the above mentioned sampling event(s). A RCRA qualified hazardous waste generator will be identified by the project manager prior to work being performed. If contaminated soils and/or debris are excavated then the soils/debris must be properly dispositioned as the responsibility of the requesting organization in accordance with applicable environmental laws and regulations. **The requester or responsible manager for the project will be accountable for waste management under RCRA regulations and/or DOE Orders (if applicable) once excavated**

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soils/debris are disturbed (if contaminated). This includes sampling, procurement and transportation of containers, meeting specific waste acceptance criteria(s), filling excavations with clean material, and returning the site to its original condition. Under no circumstances will "any" soil piles be allowed to remain at the site after the project is complete.

SURFACE WATER DIVISION:

In the unlikely event that water is encountered during excavation, then work will be stopped immediately. The RISS Surface Water Group will be notified and will be responsible for determining if the water requires sampling. The requester or project manager will be responsible for the immediate notification to the SWD. **Contact Keith Motyl, X2172.**

NEPA, AIR QUALITY, ECOLOGY, AND WATERSHED DIVISIONS:

The requester or project manager is responsible for contacting the above organizations as early as possible in the planning stages, and before initiation of fieldwork to ensure compliance with environmental checklist requirements. **Contact Steve Nesta X6386.**

References:

DOE, 1992, *Historical Release Report (HRR)*, Rocky Flats Plant, Golden, CO., June.